

CLAIMS

We claim:

1. A hybrid polypeptide comprising:
 - a target polypeptide,
 - an identification peptide comprising the amino-terminal extracellular domain of rhodopsin, where said identification peptide is linked to the amino-terminus of said target polypeptide.
2. The hybrid polypeptide of claim 1 where said identification peptide comprises an amino terminal extracellular domain of bovine rhodopsin.
3. The hybrid polypeptide of claim 2 where said identification peptide comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids.
4. The hybrid polypeptide of claim 1 where said target polypeptide comprises a membrane protein.
5. The hybrid polypeptide of claim 4 where said target polypeptide comprises a G-protein coupled receptor protein.
6. A method of purifying a target polypeptide comprising:
 - expressing a hybrid polypeptide comprising an identification peptide of the amino terminal extracellular domain of rhodopsin fused to the amino terminal region of a target polypeptide,
 - forming a complex of said hybrid polypeptide with an antibody against said amino terminal domain of rhodopsin,
 - isolating said complex, and
 - dissociating said hybrid polypeptide from said antibody.

7. The method of claim 6 where said target polypeptide comprises a G-protein coupled receptor.
8. The method of claim 6 where said identification peptide comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids..
9. The method of claim 8 where said antibody is directed against a first 15 amino acids of bovine rhodopsin.
10. The method of claim 6 where said antibody is held by a resin.
11. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by a pH gradient
12. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by a salt gradient.
13. The method of claim 6 where said hybrid polypeptide is dissociated from said antibody by competing with a peptide comprising of all or a portion of the amino terminal domain of rhodopsin.
14. A method of labeling a target polypeptide comprising:
 - expressing a hybrid polypeptide comprising: an amino terminal extracellular domain of rhodopsin fused to an amino terminal region of a target polypeptide;
 - forming a complex of said hybrid polypeptide and an antibody against said amino terminal extracellular domain of rhodopsin; and
 - detecting said complex by means of a reporting agent.

15. The method of claim 14 where said amino terminal domain of rhodopsin comprises amino-terminal amino acids of bovine rhodopsin selected from the group consisting of: a first 20, a first 25, a first 30, and a first 35 amino acids.
16. The method of claim 15 where said antibody is directed against a first 15 amino acids of bovine rhodopsin.
17. The method of claim 14 where said target polypeptide is a G-protein coupled receptor.
18. The method of claim 14 where said reporting agent is conjugated to said antibody.
19. The method of claim 14 where said reporting agent is a fluorescent marker.
20. The method of claim 14 where said reporting agent is an enzymatic marker.
21. The method of claim 14 where said reporting agent is a radioactive marker.
22. The method of claim 14 where said complex is detected by binding said complex to a secondary antibody against said antibody to the amino terminal extracellular domain of rhodopsin, and said secondary antibody is linked to a reporting agent.